archæologic nomenclature. He presented a table in which he showed the distribution of certain types and forms of artifacts.

Dr. Thomas Wilson, of the Smithsonian, has issued a number of reports in which he classifies and subdivides the multitudinous flint tools of the United States. Aside from this and what has been done by Messrs. Holmes, Fowke, Rau, Abbott and others, the various museums and individuals have confined themselves to the chronicling of explorations rather than to the detailed study of objects. Some of the more remarkable art specimens in copper, clay and shell have been reported upon. But I think it is no exaggeration to say that museums direct their attention to the accumulation of vast stores of material. This is apparent to archæologists visiting any of the five larger museums.

I agree with Mr. Douglass that too little attention is given towards the study of these interesting implements. By comparison and a careful study of localities and the objects themselves, much is to be learned.

I have begun several MSS. upon 'ornamental and ceremonial stones,' and 'implements and utensils,' etc. I shall be glad to have photographs, drawings or descriptions, together with observations and opinions from persons interested in prehistoric archæology. I shall feel encouraged if a more serious study of stone, bone, shell and clay objects results from the undertaking, although other observers may take exceptions to my views. An exchange of correspondence is desired.

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NOTES ON INORGANIC CHEMISTRY.

In the *Zeitschrift für praktische Geologie*, H. Oehmichen describes some recently discovered auriferous cobalt ores in the Kruis river district in the Transvaal. The ore, which is found associated with diabase rocks, is exclusively smaltite, with its decomposition products, as erythrite, and carries gold to the amount of about 60 grams per ton. The gold seems to be in the smaltite, as no trace of free gold is found. Five kilometers further west is another deposit of pockets of smaltite, in a gold bearing quartz, the whole assaying 400 grams per ton. Here ninety per cent. of the gold is contained in the smaltite. These deposits promise to have a very considerable value.

The subject of the distribution of the so-called rare metals continues to interest chemists and in the same journal is an extensive paper by J. H. L. Vogt on the distribution of vanadium. A very considerable portion of the paper is taken up by a review of Hillebrand's paper (published last year in the *American Journal of Science*) on the same subject. From Hillebrand's investigations and his own, Vogt concludes that the average amount of vanadium in the solid crust of the earth is between 0.0025% and 0.005%. Vanadium is thus decidedly less abundant than titanium (which occurs to the extent of 0.3%), phosphorus (0.09%), manganese (0.075%) and sulfur (0.06%); and also rarer than barium (0.03%), zirconium (0.01–0.02%) and chromium (0.01%). It falls near lithium, strontium and nickel, each of which occurs to the extent of about 0.005%, but is probably somewhat less abundant than these elements. Still rarer elements are cerium and yttrium (each less than 0.001%), cobalt (0.0005%) and thorium (0.0001%). Zinc and glucinum are somewhat less rare. Vanadium is generally found in the basic eruptive rocks, while columbium and tantalum, which resemble it are found especially in granitic rocks. The elements of Group VI. show a similar condition, for chromium is found in basic rocks, while molybdenum, tungsten and uranium are more generally associated with acidic rock masses. It might be added that these occurrences are not unnatural, inasmuch as vanadium and chromium are themselves much less positive than the elements of the same groups with higher atomic weight.

There is given in a recent number of the *Oesterreichische Zeitschrift für Berg- und Hüttenwesen* a description by E. Priwoznik of the Austrian mint methods of parting platiniferous gold and silver. The material is first digested with dilute nitric acid (1.109) in which only a trace of platinum dissolves. The residue is then treated with a somewhat diluted aqua regia in which the gold dissolves readily, while the platinum is only very slightly soluble. When silver is present a coating of silver chloride is gradu-

ally formed which impedes the solution of the gold. In this case the silver chlorid coating must be from time to time dissolved off by ammonia. The small amount of platinum in the gold solution is precipitated by sal ammoniac. When much silver is present the alloy is fused with zinc and then treated with sulfuric acid before the above process.

THE atomic weight of palladium has been several times redetermined in the past few years, but with results varying from 105.75 to 107.18. No cause has been discovered for these discrepancies. The figure accepted by Clark is 106.36, by Richards 106.5, and by the German Committee 106.0. Three new series are described by W. L Hardin in the *Journal* of the American Chemical Society, in each case the compound used being one not hitherto used for atomic weight determination. The palladium itself was most carefully purified. The results are as follows: Using diphenylpallad-diammonium chlorid, mean of seven determinations 107.006; using diphenylpallad-ammonium bromid, mean of five, 107.036; using ammonium palladium bromid, mean of four, 107.00; mean of all, 107.014. It will be seen that this figure is decidedly higher than that usually received; it is, however, in close agreement with that obtained by Keller and Smith (107.18 as a mean of nine determinations) by the use of palladdiammonium chlorid.

J. L. H.

CURRENT NOTES ON METEOROLOGY.

INTERNATIONAL METEOROLOGICAL COMMITTEE.

AT the meeting of the International Meteorological Committee held at St. Petersburg, September 2–7, 1899, it was decided that the Sub-Committee on Terrestrial Magnetism and Atmospheric Electricity should be maintained as a distinct organization, under the direction of the International Committee. The committee recommended that meteorological institutions should take part in observations of earthquake phenomena, and in the matter of Antarctic exploration expressed the opinion that it is highly desirable (1) that the results of these explorations should be completed by data from the observatories already existing in the Southern Hemisphere and by those made on board vessels traversing the southern oceans; (2) that new meteorological stations should be established in the southern part of the Antarctic regions, and especially that magnetic observations should be organized; (3) that magnetic determinations over the whole globe should be made simultaneously with those made during the expeditions. The subjects of publishing tables of diurnal range of temperature for each country in a special form, the importance of actinometric observations, the multiplication of observations with the hair hygrometer in place of the wet-bulb thermometer, the laying of a cable between Iceland and Europe, and the publication of an international periodical weather report to contain ten-days means for about 100 stations, were discussed, but no definite action was taken regarding them. It was decided that the International Committee and all the sub-committees should meet in Paris in 1900, immediately after the Meteorological Congress. *Nature* of October 19th contains a brief account of the Proceedings at the September Meeting of the International Committee.

THE TEXAS FLOODS OF JUNE 27 TO JULY 15.

A report on the flood in the Brazos river valley, Texas, at the end of June and the beginning of July last appears in the *Monthly Weather Review* for July (issued September 22d). The writer, Dr. I. M. Cline, Local Forecast Official of the Weather Bureau at Galveston, states that the heavy rains resulted from a semi-tropical storm which moved northward from the central portion of the Gulf of Mexico. The storm was first noted on the morning weather map of June 26th, and moved inland during the night, dying out as it advanced. An anticyclone moving southward from the northwest opposed the Gulf storm on June 27–28, these being the pressure conditions which prevailed during the occurrence of the rains. Two of the heaviest rains recorded during the 72 hours ending at 8 A. M., June 28th, were as follows: Alvin, 7.27 ins.; Brazoria, 7.83 ins. During the 72 hours ending at 8 A. M., June 29th, some of the heaviest rainfalls were: Columbia, 8.06 ins.; Danevang, 11.07 ins.; Rock Island, 10.15 ins., and during the 72 hours ending at 8 A. M., June 30th, Brenham had 19.99 ins.